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6 Combustion products 8 from the combustion
7 chamber pass through a flue gas heat exchange coil 9
8 that is contained within a waste heat steam generator
9 10, wherein the combustion products are cooled and ^{STEAM}(steam)
10 11 is generated. The cooled combustion products 13 are
11 further cooled by exchanging heat in a feed water
12 exchanger 14 that produces heated water 15 that is
13 supplied to the waste heat steam generator 10.

14 The hydrogen-rich stream 7 from the tubular
15 catalytic reactor 3 is cooled in an exchanger 2 to a
16 temperature typically in the range of 400°F-550°F
17 whereupon the cooled ^{STREAM}(steam) 18 is introduced into a
18 fixed-bed catalytic reactor 19 shown as surrounding
19 steam generator 10, to effect a water gas shift
20 reaction that converts a portion of the carbon monoxide
21 to hydrogen and carbon dioxide by reaction with steam.
22 The catalyst bed reactor typically contains a supported
23 Cu/Zn catalyst and is commonly known in the industry as
24 a low temperature shift reactor. The walls 20 of the
25 low temperature shift reactor are in thermal
26 communication with boiling water contained in the waste

1 heat steam generator. The heat released in the low
2 temperature shift reactor is thus beneficially
3 recovered to generate steam. The carbon monoxide
4 concentration of the process gas 21 exiting the low
5 temperature shift reactor is typically less than 0.5%.

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